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PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Kenneth W. Aull

Confirmation No.: 3015

Application No.: 10/027,607

Examiner: Nadia Khoshnoodi

Filing Date: 19 December 2001

Group Art Unit: 2137

Title: Public Key Infrastructure Token Issuance and Binding

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
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TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is a Replacement Appeal Brief in this application with respect to the Notice of Non-Compliant Appeal Brief issued on May 22, 2007.

(complete (a) or (b) as applicable)

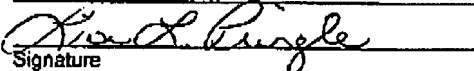
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Respectfully submitted,

By 

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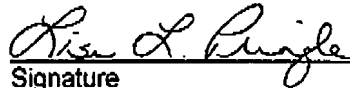
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(type or print name of person certifying)

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Kenneth Aull
Serial No. : 10/027,607
Filing Date : December 19, 2001
For : PUBLIC KEY INFRASTRUCTURE
TOKEN ISSUANCE AND BINDING
Group Art Unit : 2137
Examiner : Nadia Khoshnoodi
Attorney Docket No. : NG(MS)7191

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Alexandria, VA 22313-1450

REPLACEMENT APPEAL BRIEF

Sir:

Pursuant to the Notice of a Non-Compliant Appeal Brief issued on May 22,
2007, Appellant presents herewith this Replacement Appeal Brief.

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II. REAL PARTY IN INTEREST

The real party in interest is Northrop Grumman Corporation, as indicated by the Assignment recorded July 15, 2004.

III. RELATED APPEAL AND INTERFERENCES

There are no related appeals or interferences.

IV. STATUS OF CLAIMS

Claims 1 and 3-20, which are attached in the first Appendix, are currently pending in this application. Claim 2 has been canceled. Claims 1 and 3-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pub. No. 2003/0005291 to Burn ("Burn") in view of U.S. Patent No. 6,490,367 to Carlsson et al. ("Carlsson").

The rejection of claims 1 and 3-20 is appealed.

V. STATUS OF AMENDMENTS

A response to a Final Office Action ("Final Rejection") issued on October 6, 2006 was filed on December 6, 2006. No amendments of the claims were filed after the Final Rejection. An Advisory Action Before Filing an Appeal Brief ("Advisory Action") dated December 28, 2006 was issued. The Advisory Action indicated that the request for reconsideration set forth in the Response to the

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Final Rejection was considered, but did not place the application in condition for allowance.

VI. SUMMARY OF THE CLAIMED SUBJECT MATTER

A. Claim 1

One aspect of the invention, as recited in claim 1 is directed to a token (130 of FIG. 1) issuance and binding process (Par. [0023]). The process comprises providing a plurality of tokens (130 of FIG. 1) each token (130 of FIG. 1) having a unique ID number stored therein (Par. [0023]) and generating a unique public/private key pair for each token (Par. [0025]). The process also comprises storing (220 of FIG.2) each token ID number and corresponding public key in a directory/database (Par. [0025]). The process further comprises storing (210 of FIG. 2) each private key in its respective token (Par. [0025]) and binding (290 of FIG. 2) a unique ID number of a user (132 of FIG. 1) to a corresponding one of the plurality of tokens (130 of FIG. 1) by storing the correspondence there between in the directory/database (108 of FIG.1) (Par. [0031]). The process still further comprises reviewing, by a Tokenizing Officer (146 of FIG. 1), (230 of FIG. 2) credentials of the user (132 of FIG. 1) and forwarding the user ID number and the token ID number to a CMS (Certificate Management System) (110 of FIG. 1) along with an E-form (electronic form) request and signature of the

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Tokenizing Officer (146 of FIG. 1) (Par. [0028]), wherein the Tokenizing Officer (146 of FIG. 1) comprises a person (Par. [0026]).

B. Claim 3

Claim 3 is directed to the process of claim 1, the binding (290 of FIG. 2) further comprising the CMS (110 of FIG. 1) checking (250 of FIG. 2) for redundant user tokens (130 of FIG. 1) and revoking any such user tokens (130 of FIG. 1) (Par. [0028]).

C. Claim 11

Another aspect of the present invention, as recited in claim 11 is directed A PKI (Public Key Infrastructure) system (Par. [0001]). The system comprises a plurality of tokens (130 of FIG. 1), each token (130 of FIG. 1) having a unique ID number stored therein (Par. [0023]) and a CMS facility (110 of FIG. 1) including a first interface to read data from the plurality of tokens (130 of FIG. 1) and to write data to the plurality of tokens (130 of FIG. 1) and including a directory/database (108 of FIG. 1) (Par. [0023]). The system also comprises a badging facility including a terminal (128 of FIG. 1) operatively connected to communicate with the CMS (110 of FIG. 1) and including a second interface to read data from the plurality of tokens (130 of FIG. 1) and to write data to the plurality of tokens (130 of FIG. 1) (Par. [0023]). The CMS (110 of FIG. 1) generates a unique public/private key pair for each token (Par. [0025]) and stores each token ID number and corresponding token public key in the directory/database (108 of

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FIG. 1) (220 of FIG. 2) and stores each token private key (210 of FIG. 1) in its respective token (130 of FIG. 1) (Par. [0025]). A Tokenizing Officer (146 of FIG. 1) utilizes the terminal (126 of FIG. 1) in the badging facility to forward a unique ID number of a user (132 of FIG. 1) to which a particular token (130 of FIG. 1) is to be issued along with the unique ID number of the particular token (130 of FIG. 1) to the CMS (110 of FIG. 1). The CMS (110 of FIG. 1) binds the unique ID number of the user (132 of FIG. 1) to the particular token ID number by storing the correspondence there between in the directory/database (108 of FIG. 1) (Par. [0031]), wherein the Tokenizing Officer (146 of FIG. 1) comprises a person (Par. [0026]).

Claim 13

Claim 13 is directed to the system of claim 12, wherein the CMS (110 of FIG. 1) checks (250 of FIG. 2) for redundant user tokens (130 of FIG. 1) and revokes any such user tokens (130 of FIG. 1) (Par. [0028]).

VII. GROUNDS OF REJECTION TO BE REVIEW ON APPEAL

A. Whether claims 1 and 3-20 are made obvious under 35 U.S.C. §103(a) by Burn in view of Carlsson?

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VIII. ARGUMENTS FOR CLAIMS**A. 35 U.S.C. §103(a) rejection of claims 1-2 and 9-10 as being made obvious by Burn in view of Carlsson**

The Court of Customs and Patent Appeals has held that to establish prima facie obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

1. The Obviousness Rejection of claim 1

Claim 1 is patentable over Burn in view of Carlsson for at least the following reasons. Burn taken in view of Carlsson does not teach or suggest reviewing, by a Tokenizing Officer, credentials of a user and forwarding a user ID number and a token ID number to a CMS along with an electronic form request and a signature of the Tokenizing Officer, as recited in claim 1. In the Final Rejection, the Examiner contended that Column 8, Lines 12-51 of Carlsson discloses this element of claim 1. Applicant's representative respectfully disagrees. Carlsson discloses that an administrator uses a certificate authority (CA) terminal to complete a form with user information and validity periods which are required in order to create a certificate (See Carlsson, Col. 8, Lines 27-30). Carlsson also discloses that a card can be personalized, and that card personalization involves adding a certificate and a user's private key to the card. However, Carlsson does not teach or suggest a Tokenizing Officer forwarding a

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user ID number and a token ID number to a CMS, as recited in claim 1. In fact, nothing in Carlsson discloses that the cards even contain a token ID number, or some other kind of unique identifier.

In the Final Rejection, the Examiner contended that Carlsson's disclosure of a sequence number reads on the token ID number recited in claim 1 (See Final Rejection, Page 2, citing Col. 8, Lines 34-37 of Carlsson). Applicant's representative respectfully disagrees. The cited section of Carlsson discloses that before certificate data is sent to a CA centre, the certificate data is signed, together with the service life and sequence number of the certificate request, by the administrator (See Carlsson, Col. 8, Lines 34-37). The "sequence number" disclosed in Carlsson is clearly referencing an administration number. Nothing in Carlsson teaches or suggests that the sequence number is unique to a card (e.g., token), in contrast to the token ID number recited in claim 1. Instead, it appears that the sequence number is unique to the particular certificate request.

A certificate does not correspond to a token, and thus, a sequence number of a certificate request, as disclosed in Carlsson, does not correspond to a token ID, as recited in claim 1. The term token is clearly defined in the Specification of the present Application. The Specification states that a token is a smart card, a universal serial bus (USB) token, or other hardware token capable of generating, storing, and using public key infrastructure (PKI) certificates/public keys (See Spec., Par. [0018]). Clearly, from the definition of a

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token as disclosed in the Specification, as well as the normal meaning of a token by a person of ordinary skill in the art, a certificate does not correspond to a token, as recited in the claims.

Furthermore, the Federal Circuit has held that the doctrine of claim differentiation dictates that where claims use different terms, those differences are presumed to reflect a difference in the scope of the claims. *Forest Laboratories, Inc. v. Abbott Laboratories*, 239 F.3d 1305, 1310, 57 U.S.P.Q.2D 1794 (Fed. Cir. 2001). As an example, claims 7 and 17 both recite storing a signature certificate/private key for the user in a token. Thus, the claims, by virtue of the doctrine of claim differentiation, distinguish between a token and a certificate. Therefore, both the doctrine of claim differentiation and the Specification of the present Application support a conclusion that a certificate does not correspond to a token, as recited in the claims. Accordingly, the sequence number of a certificate request disclosed in Carlsson does not correspond to the token ID number recited in claim 1.

In the Advisory Action, the Examiner states that in claim 1, the recited token ID number is not necessarily stored in a token. Applicant's representative respectfully disagrees. Claim 1 recites providing a plurality of tokens, each token having a unique ID number stored therein and storing each token ID number in a directory/database. It is clear to one skilled in the art that a unique ID for a particular token is the token ID number. Accordingly, Burn taken in view of

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Carlsson fails to teach or suggest reviewing, by a Tokenizing Officer, credentials of the user and forwarding a user ID number and a token ID number to a CMS system along with an electronic form request and a signature of the Tokenizing Officer, wherein the Tokenizing Officer comprises a person, as recited in claim 1. Thus, Burn taken in view of Carlsson does not teach or suggest each and every element of claim 1.

For the reasons stated above, Burn taken in view of Carlsson does not make claim 1 obvious. Thus, Applicant's representative respectfully requests that the rejection of claim 1 be withdrawn.

2. The Obviousness Rejection of Claim 3

Claim 3 depends from claim 1 and is patentable over Burn in view of Carlsson for at least the same reasons as claim 1, and for the following reasons. Burn taken in view of Carlsson does not teach or suggest a CMS checking for redundant user tokens and revoking any such user tokens. In the Final Rejection the Examiner contended Carlsson's disclosure of its certificate revocation procedure disclosed this element of claim 3 (See Final Rejection, Pages 5-6, Citing Carlsson, Col. 9, lines 14-20). Applicant's representative respectfully disagrees.

The cited section of Carlsson discloses that a certificate can be revoked when a user has died, has been found to be unreliable or his/her role has

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changed (See Carlsson, Col. 9, Lines 14-17). However, in claim 3, the process recited ensures that a user possesses, at most, one token. Nothing in Carlsson teaches or suggests limiting the number of personalized cards (e.g., tokens) that any one user can possess, in contrast to the process recited in claim 3.

Therefore, Burn taken in view of Carlsson fails to make claim 3 obvious and the rejection of claim 3 should be withdrawn.

3. The Obviousness Rejection of Claims 4-10

Claims 4-10 depend either directly or indirectly from claim 1 and are not made obvious for at least the same reasons as claim 1 and for the specific elements recited therein. Accordingly, the rejection of claims 4-10 should be withdrawn.

4. The Obviousness Rejection of Claim 11

Claim 11 is patentable over Burn in view of Carlsson for at least the following reasons. Burn taken in view of Carlsson fails to teach or suggest that a Tokenizing Officer utilizes a terminal in a badging facility to forward a unique ID number of the user to which a particular token is to be issued along with a unique ID number of the particular token to a CMS, wherein the Tokenizing Officer comprises a person, as recited in claim 11. In the Final Rejection, the Examiner contended that Column 8, Lines 12-51 of Carlsson discloses this element of claim 11 (See Final Rejection, Page 7, citing the rejection of claim 1). Carlsson

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discloses that a card can be personalized, and that card personalization involves adding a certificate and a user's private key to the card (See Carlsson, Col. 7, Lines 27-30). However, Carlsson does not teach or suggest a Tokenizing Officer forwarding a user ID number and a token ID number to a CMS, as recited in claim 11. In fact, nothing in Carlsson discloses that the cards even contain a token ID number, or some other kind of unique identifier.

In the Final Rejection, the Examiner contended that Carlsson's disclosure of a sequence number reads on the token ID number recited in claim 11 (See Final Rejection, Page 2, citing Col. 8, Lines 34-37 of Carlsson). Applicant's representative respectfully disagrees. The "sequence number" disclosed in Carlsson is clearly referencing an administration number. Nothing in Carlsson teaches or suggests that the sequence number is unique to a card (e.g., token), in contrast to the token ID number recited in claim 11. Instead, in Carlsson, it appears that the sequence number is unique to the particular certificate request.

A certificate does not correspond to a token, and thus, a sequence number of a certificate request, as disclosed in Carlsson does not correspond to a token ID, as recited in claim 11. The Specification states that a token is a smart card, a universal serial bus (USB) token, or other hardware token capable of generating, storing, and using public key infrastructure (PKI) certificates/public keys (See Spec., Par. [0018]). Additionally, claims 7 and 17 both recite storing a signature certificate/private key for the user in a token. Thus, the claims, by

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virtue of the doctrine of claim differentiation, distinguish between a token and a certificate. Clearly, from the definition of a token as disclosed in the Specification, the doctrine of claim differentiation, as well as the normal meaning of a token by a person of ordinary skill in the art, a certificate does not correspond to a token, as recited in the claims. Accordingly, the sequence number of a certificate request disclosed in Carlsson does not correspond to the token ID number recited in claim 11.

In the Advisory Action, the Examiner states that in claim 11, the recited token ID number is not necessarily stored in a token. Applicant's representative respectfully disagrees. Claim 11 recites a plurality of tokens, each token having a unique ID number stored therein and a CMS that stores each token ID number in a directory/database. It is clear to one skilled in the art that a unique ID for a particular token is the token ID number. Accordingly, Burn taken in view of Carlsson fails to teach or suggest a Tokenizing Officer that utilizes a terminal in a badging facility to forward a unique ID number of a user to which a particular token is to be issued along with the unique ID of the particular token to the CMS, wherein the CMS binds the unique ID number of the user to the particular token ID number by storing the correspondence there between in the directory/database, wherein the Tokenizing Officer comprises a person, as recited in claim 11. Thus, Burn taken in view of Carlsson does not teach or suggest each and every element of claim 11.

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Therefore, Burn taken in view of Carlsson does not make claim 11 obvious. Accordingly, Applicant's representative respectfully requests that the rejection of claim 11 be withdrawn.

5. The Obviousness Rejection of Claim 13

Claim 13 depends from claim 12 and is not made obvious by Burn taken in view of Carlsson for at least the same reasons as claim 12, and for the following reasons. Claim 13 recites that a CMS checks for redundant tokens and revokes any such user tokens. In the system recited in claim 13, each user can possess, at most, one token. Burn taken in view of Carlsson does not teach or suggest that a user cannot possess more than one personalized card (e.g., token), in contrast to the system recited in claim 11. Therefore, Burn taken in view of Carlsson does not teach or suggest each and every element of claim 13, and the rejection of claim 13 should be withdrawn.

6. The Obviousness Rejection of Claims 14-20

Claims 14-20 depend either directly or indirectly from claim 11 and are not obvious for at least the same reasons as claim 11 and for the specific elements recited therein. Accordingly, the rejection of claims 14-20 should be withdrawn.

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IX. APPENDICES

The first attached Appendix contains a copy of the claims on appeal.

The second and third Appendices have been included to comply with statutory requirements.

Please charge any deficiency or credit any overpayment in the fees for this Appeal Brief to Deposit Account No. 20-0090.

Respectfully submitted,



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Claims Appendix

Claim 1 A token issuance and binding process comprising:

providing a plurality of tokens, each token having a unique ID number stored therein;

generating a unique public/private key pair for each token;

storing each token ID number and corresponding public key in a directory/database;

storing each private key in its respective token;

binding a unique ID number of a user to a corresponding one of the plurality of tokens by storing said correspondence there between in the directory/database; and

reviewing, by a Tokenizing Officer, credentials of the user and forwarding the user ID number and the token ID number to a CMS (Certificate Management System) along with an E-form (electronic form) request and signature of the Tokenizing Officer, wherein the Tokenizing Officer comprises a person.

Claim 3 The process of claim 1, the binding further comprising the CMS checking for redundant user tokens and revoking any such user tokens.

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Claim 4 The process of claim 3, the binding further comprising the CMS filling in the E-form from its directory/database and forwarding the filled in E-form to the Tokenizing Officer.

Claim 5 The process of claim 4, the binding further comprising the Tokenizing Officer reviewing data in the filled in E-form and comparing against the user credentials and returning same to the CMS after signing.

Claim 6 The process of claim 5, the binding further comprising the CMS validating the Tokenizing Officer's signature and generating and wrapping at least a signature certificate/private and associated private key for the user in the unique public key of the token and returning same to the Tokenizing Officer.

Claim 7 The process of claim 6, the binding further comprising the Tokenizing Officer storing the signature certificate/private key for the user in the token.

Claim 8 The process of claim 7, the binding further comprising the user unwrapping the signature certificate/private key using the token private key stored in the token.

Claim 9 The process of claim 1, wherein providing a plurality of tokens comprises providing a plurality of USB (Universal Serial Bus) tokens.

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Claim 10 The process of claim 1, wherein providing a plurality of tokens comprises providing a plurality of smart cards.

Claim 11 A PKI (Public Key Infrastructure) system comprising:
a plurality of tokens, each token having a unique ID number stored therein;

a CMS (Certificate Management System) facility including a first interface to read data from said plurality of tokens and to write data to said plurality of tokens and including a directory/database; and

a badging facility including a terminal operatively connected to communicate with said CMS and including a second interface to read data from said plurality of tokens and to write data to said plurality of tokens;

wherein said CMS generates a unique public/private key pair for each token and stores each token ID number and corresponding token public key in said directory/database and stores each token private key in its respective token; and

wherein a Tokenizing Officer utilizes said terminal in said badging facility to forward a unique ID number of a user to which a particular token is to be issued along with the unique ID number of said particular token to said CMS and wherein said CMS binds the unique ID number of said user to said particular

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token ID number by storing the correspondence there between in said directory/database, wherein the Tokenizing Officer comprises a person.

Claim 12 The system of claim 11, wherein said Tokenizing Officer reviews credentials of said user and forwards the user ID number and token ID number to said CMS along with an E-form (electronic form) request and signature of said Tokenizing Officer.

Claim 13 The system of claim 12, wherein said CMS checks for redundant user tokens and revokes any such user tokens.

Claim 14 The system of claim 13, wherein said CMS fills in the E-form from said directory/database and forwards the filled in E-form to said Tokenizing Officer.

Claim 15 The system of claim 14, wherein said Tokenizing Officer reviews data in filled in the E-form and compares against the user credentials and returns same to said CMS after signing.

Claim 16 The system of claim 15, wherein said CMS validates said Tokenizing Officer's signature and generates and wraps at least a signature certificate and associated private key for said user in said unique token public key of said particular token and returns same to said Tokenizing Officer.

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Claim 17 The system of claim 16, wherein said Tokenizing Officer stores the signature certificate/private key for said user in said particular token.

Claim 18 The system of claim 17, wherein said user unwraps said signature certificate/private key using said token private key stored in said particular token.

Claim 19 The system of claim 11, wherein said plurality of tokens comprises a plurality of USB (Universal Serial Bus) tokens.

Claim 20 The system of claim 11, wherein said plurality of tokens comprises a plurality of smart cards.

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Evidence Appendix

None

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Related Proceedings Appendix

• None